

3.3 Practice A

In Exercises 1–4, solve the equation using square roots. Check your solution(s).

1. $x^2 - 4x + 4 = 9$

2. $y^2 - 12y + 36 = 49$

3. $n^2 - 20n + 100 = 40$

4. $p^2 + 14p + 49 = 2$

In Exercises 5–8, find the value of c that makes the expression a perfect square trinomial. Then write the expression as the square of a binomial.

5. $x^2 + 8x + c$

6. $x^2 + 14x + c$

7. $y^2 - 18y + c$

8. $y^2 + 26y + c$

In Exercises 9–14, solve the equation by completing the square.

9. $x^2 + 8x + 5 = 0$

10. $h^2 - 10h - 4 = 0$

11. $t^2 - 12t + 10 = 0$

12. $s^2 + 14s - 9 = 0$

13. $y(y + 6) = 2$

14. $g(g + 10) = -6$

In Exercises 15–18, determine whether you would use factoring, square roots, or completing the square to solve the equation. Explain your reasoning. Then solve the equation.

15. $(x - 3)^2 = 25$

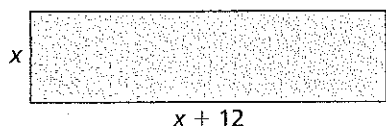
16. $x^2 + 5x + 4 = 0$

17. $x^2 - 6x + 9 = 0$

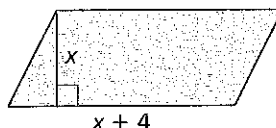
18. $x^2 - 10x - 8 = 0$

In Exercises 19 and 20, find the value of x .

19. Area of rectangle = 64



20. Area of parallelogram = 20



In Exercises 21 and 22, write the quadratic function in vertex form. Then identify the vertex.

21. $f(x) = x^2 + 10x + 32$

22. $g(x) = x^2 - 6x - 2$

3.3 Practice B

In Exercises 1–4, solve the equation using square roots. Check your solution(s).

1. $w^2 - 22w + 121 = 81$

2. $k^2 - 16k + 64 = -8$

3. $t^2 - 30t + 225 = -24$

4. $9p^2 + 6p + 1 = 12$

In Exercises 5–8, find the value of c that makes the expression a perfect square trinomial. Then write the expression as the square of a binomial.

5. $x^2 + 16x + c$

6. $x^2 + 7x + c$

7. $y^2 - 3y + c$

8. $y^2 + 20y + c$

In Exercises 9–14, solve the equation by completing the square.

9. $q(q + 6) = 1$

10. $5h^2 - 5h - 15 = 0$

11. $3x^2 + 24x + 15 = 0$

12. $3y(y - 8) = -36$

13. $7t^2 - 18t = 14 + 10t$

14. $2s^2 + 4s = -6s + 3$

In Exercises 15–18, determine whether you would use factoring, square roots, or completing the square to solve the equation. Explain your reasoning. Then solve the equation.

15. $(x + 9)^2 = 49$

16. $3x^2 + 6x - 4 = 0$

17. $x^2 - 144 = 0$

18. $5x^2 - 45 = 0$

In Exercises 19–22, write the quadratic function in vertex form. Then identify the vertex.

19. $f(x) = x^2 + 18x + 100$

20. $g(x) = x^2 - 2x - 26$

21. $h(x) = x^2 + 22x + 96$

22. $f(x) = x^2 - x + 2$

23. The height y (in feet) of a basketball t seconds after it is thrown can be modeled by the function $y = -16t^2 + 32t + 2$.

a. Find the maximum height of the basketball.

b. The basketball is caught in its descent when it is 7 feet above the ground. How long is the basketball in the air?